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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/453,319	12/02/1999	STEVEN M. SHEPARD	209529-81571	2455

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HONIGMAN MILLER SCHWARTZ AND COHN LLP
32270 TELEGRAPH RD
SUITE 225
BINGHAM FARMS, MI 48025-2457

EXAMINER

VERBITSKY, GAIL KAPLAN

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/453,319

Applicant(s)

SHEPARD, STEVEN M.

Examiner

Gail Verbitsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2005.
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 15-17 is/are allowed.
6) ☒ Claim(s) 1-14, 18 and 24 is/are rejected.
7) ☒ Claim(s) 19-23 and 25-28 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Specification

1. The specification is finally objected to because, according to the specification, page 4, first paragraph (newly added description to Fig. 1B), "the application of the tensile forces does not exacerbate the defect" while, according to the originally filed specification, page 2, lines 16-19, 23-24, page 5, line 22, page 6, line 6, page 9, lines 11, 14, 23-24, the walls of the defect are shifted under stress.

Furthermore, the Examiner considers that the statement "no migration of defect 100 toward surface 102" in the amendment to the specification, Fig. 1B, is a new matter.

Also, perhaps applicant should better define/ distinguish the subsurface defect vs. thermal discontinuity and describe how the forces are applied. Perhaps Applicant should show thermal discontinuities in the drawings. Furthermore, please note, no new matter should be added.

Furthermore, please note, that in the rejection on the merits, the Examiner considers that the thermal discontinuity is a diminished continuity/ lack of continuity /lack of thermal conduction shown in the thermal images, and if that the application of stress impacts the subsurface kissing defect, it, inherently, impacts thermal continuity/ thermal conduction through the defect. Clarification is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

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art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1 and 24 are finally rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In this case, Claims 1 and 24: the originally filed specification does not describe that the applied force "is sufficient to exacerbate a thermal discontinuity caused by the subsurface kissing unbond defect", as stated in claims 1 and 24.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-14, 24 are finally rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In this case, the claim language is confusing due to the reasons stated above in paragraph 3.

Claims 2-14 are rejected by virtue of their dependency on claim 1.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3, 18, 24 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas et al. (U.S. 6236049) [hereinafter Thomas] in view of Devitt et al. (U.S. 5111048) [hereinafter Devitt].

Thomas discloses a device/ method of non-destructively evaluating a specimen comprising exciting the specimen having a subsurface defect by an ultrasonic energy (col. 3, lines 1-2) and having an infrared camera for generating an infrared image to detect the presence of the subsurface (kissing) defect which, inherently, has thermal discontinuities. Thomas states that the means providing the ultrasonic energy is capable to perform both functions, to heat the material and to provide the vibrational energy (force), so as to make the defect visible (col. 6, lines 55-58).

Although Thomas teaches to apply the vibrational energy (force), so as to make the defect visible, which means that the force could be sufficient enough to exacerbate the discontinuities and the kissing unbond (disband) defect, Thomas still does not explicitly teach to exacerbate the defect/ thermal discontinuities, as stated in claim 24.

Devitt teaches a nondestructive evaluating of a specimen/ component 10 by applying stress to the specimen having a subsurface defect; the stress (force) is capable to exacerbate the subsurface defect and thus, its discontinuities (col. 7, lines 35-40) and then being seen by an IR detector. Devitt states that the stress placed onto the component 10 should be at the intensity level below the characteristic damage threshold. This would imply, that, although the defect would open, it would not become any worse (damaged) after the stress is removed. Thus, the stress is sufficient enough

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to exacerbate the defect and its discontinuities but not strong enough to make the defect worse (to damage it).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply stress/ force to specimen/ material having a subsurface defect, disclosed by Thomas, so as to exacerbate the subsurface defect/ discontinuity, as taught by Devitt, in order to make the defect better visible to the operator, as already suggested by Devitt.

The method steps will be met during the normal operation of the device stated above.

Allowable Subject Matter

8. Claims 2, 4-14 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112.
9. Claims 19-23, 25-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. Claims 15-17 are allowed.

Response to Arguments

11. Applicant's arguments with respect to claims 1-14, 18, 24 have been considered but are moot in view of the new ground(s) of rejection necessitated by the present amendment.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

NN82102633 discloses a device in the field of applicant's endeavor. According to Fig. 1, the subsurface defect 24 does not migrate to ward the surface.

SU1081510A discloses a device in the field of applicant's endeavor. According to Fig. 1, the subsurface defect 2 does not migrate to ward the surface.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gail Verbitsky whose telephone number is 571/ 272-2253. The examiner can normally be reached on 7:30 to 4:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571/ 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GKV

Gail Verbitsky

Primary Patent Examiner, TC 2800



July 27, 2005